

Mineral Industry Surveys

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CHROMIUM IN OCTOBER 2004

On the basis of gross weight, consumption of chromium ferroalloys and metal in October 2004 increased 6% compared with consumption in September 2004, according to the U.S. Geological Survey.

Included in this Mineral Industry Surveys are U.S. salient chromium statistics, U.S. government stockpile inventory of chromium materials in October 2004, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of October 2004, and U.S. foreign trade data for selected chromium-containing materials in September 2004.

Update

The Defense National Stockpile Center (DNSC) announced the sale of 7,257 metric tons (t) of ferrochromium in November

comprising 5,443 t of high-carbon ferrochromium and 1,814 t of low-carbon ferrochromium. The sale was valued at \$7.1 million or \$0.444 per pound-gross weight (Defense National Stockpile Center, 2004b). DNSC also reported the sale of 51.7 t of chromium metal valued at \$238,826 or \$2.09 per pound on average (Defense National Stockpile Center, 2004a).

References Cited

Defense National Stockpile Center, 2004a, Stockpile accepts chromium metal bids: Defense National Stockpile Center, News Release DNSC-05-2541, December 3, 1 p.
Defense National Stockpile Center, 2004b, Stockpile announces ferrochromium sales for November 2004: Defense National Stockpile Center, News Release DNSC-05-2534, December 6, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2003	2004					
	January-December ²	July	August	September	Third quarter	October	January-October ²
Production:							
Stainless steel production ³	2,210,000	189,000	220,000	175,000	584,000	202,000	1,930,000 ⁴
Components of U.S. supply:							
Stainless steel scrap receipts	757,000	62,700	63,300	63,200	189,000	68,900	666,000
Stainless steel scrap consumption	1,070,000	92,500	96,200	86,500	275,000	95,100	935,000
Imports for consumption:							
Chromite ore	173,000	461	20,200	4,600	25,200	NA	92,300 ⁵
Ferrochromium:							
More than 4% carbon	366,000	22,100	54,600	13,300	90,000	NA	266,000 ⁵
More than 3% carbon but not more than 4% carbon	--	--	20	10	30	NA	30 ⁵
More than 0.5%, but not more than 3% carbon	5,340	20	1,090	551	1,660	NA	4,980 ⁵
Not more than 0.5% carbon	19,500	1,120	3,530	1,800	6,450	NA	23,200 ⁵
Ferrochromium silicon	38,700	--	3,870	532	4,400	NA	20,800 ⁵
Total ferroalloy imports	429,000	23,300	63,100	16,200	103,000	NA	315,000 ⁵
Chromium metal ⁶	8,570	923	526	716	2,170	NA	7,290 ⁵
Stainless steel	639,000	71,000	63,700	75,700	210,000	NA	567,000 ⁵
Stainless steel scrap	89,200	8,850	12,400	9,300	30,500	NA	109,000 ⁵
Distribution of U.S. supply:							
Industry consumer, chromium ferroalloys and metal	420,000	37,000	37,600	34,600 ^r	109,000	36,700	360,000
Exports:							
Chromite ore	103,000	8,180	10,200	2,750	21,100	NA	41,000 ⁵
Chromium ferroalloys:							
High-carbon ferrochromium	3,180	457	334	442	1,230	NA	5,210 ⁵
Low-carbon ferrochromium	1,230	109	158	103	370	NA	985 ⁵
Ferrochromium silicon	481	147	41	161	349	NA	1,130 ⁵
Total ferroalloy exports	4,890	713	533	706	1,950	NA	7,320 ⁵
Chromium metal	941	100	93	53	246	NA	776 ⁵
Stainless steel	327,000	27,600	23,100	22,900	73,600	NA	244,000 ⁵
Stainless steel scrap	505,000	34,700	31,100	34,800	101,000	NA	357,000 ⁵
Stocks at end of period:							
Industry consumer, chromium ferroalloys and metal	16,700	10,800	11,200	11,900 ^r	XX	11,500	XX
Government stockpile:							
Chromite ore	154,000	--	--	--	XX	--	XX
Chromium ferroalloys	683,000	622,000	619,000	601,000	XX	596,000	XX
Chromium metal	6,660	6,670	6,670	6,670	XX	6,670	XX

^rRevised. NA Not available. XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May contain revised data.

³Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

⁴Includes revised data that is not broken out by specific month.

⁵Includes January through September data; October data not available.

⁶Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN 2004¹

(Metric tons, gross weight unless otherwise noted)

	September	October	January- October ²
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	394	433	3,460
High-strength low-alloy steel	689 ^r	647	6,420
Stainless and heat-resisting steel	29,800	31,900	313,000
Full alloy steel	1,560 ^r	1,590	15,400
Electrical steel	W	W	W
Tool steel	482	445	4,720
Unspecified steel	W	W	W
Cast irons	W	W	W
Superalloys	711 ^r	745	7,400
Other alloys ³	83	37	630
Total	34,600 ^r	36,700	360,000
Total, chromium content	20,100 ^r	21,200	210,000
Consumption by material:			
Low-carbon ferrochromium	1,830 ^r	2,030	19,700
High-carbon ferrochromium	29,200	31,000	305,000
Ferrochromium silicon	3,060	3,140	29,900
Chromium metal	383 ^r	371	3,800
Chromite ore	W	W	W
Chromium-aluminum alloy	29 ^r	29	317
Other chromium materials	W	W	W
Total	34,600 ^r	36,700	360,000
Total, chromium content	20,100 ^r	21,200	210,000
Consumer stocks:			
Low-carbon ferrochromium	2,010 ^r	1,870	XX
High-carbon ferrochromium	8,410 ^r	8,060	XX
Ferrochromium silicon	1,250	1,270	XX
Chromium metal	160 ^r	195	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	37	26	XX
Other chromium materials	W	W	XX
Total	11,900 ^r	11,500	XX
Total, chromium content	7,010 ^r	6,710	XX

^rRevised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Includes welding and alloy hard-facing rods and materials; wear- and corrosion-resistant alloys; and aluminum, copper, magnetic, nickel, and other alloys.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY OF CHROMIUM MATERIALS^{1, 2}

(Metric tons)

Period	Chromite ore		Chromium ferroalloys		Chromium metal
	Chemical	Refractory	High-carbon ferro-chromium	Low-carbon ferro-chromium	
2003:					
October	71,500	82,600	477,000	218,000	7,120
November	71,500	82,600	472,000	217,000	7,120
December	71,500	82,600	466,000	217,000	6,660
2004:					
January	--	82,600	462,000	215,000	6,660
February	--	82,100	453,000	212,000	6,660
March	--	82,100	453,000	212,000	6,660
April	--	--	436,000	209,000	6,660
May	--	--	430,000	208,000	6,660
June	--	--	425,000	208,000	6,660
July	--	--	414,000	208,000	6,670
August	--	--	412,000	206,000	6,670
September	--	--	408,000	192,000	6,670
October	--	--	404,000	192,000	6,670

-- Zero.

¹Data are rounded to no more than three significant digits.

²These Government stocks are reported by the Defense National Stockpile Center in Inventory of Stockpile Materials R-1, which reports uncommitted inventory. Uncommitted inventory is that inventory for which there is no sales contract. Committed inventory is that inventory for which there is a sales contract, however, the material has not yet been shipped. For chromium materials, the R-1 report includes chromium materials that (1) meet specifications and are held in excess of goal and (2) do not meet specifications and are held in excess of goal. The R-1 report excludes chromium materials that are committed and awaiting shipment.

Source: Defense National Stockpile Center.

TABLE 4
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL¹

Period	Chromite ore		Chromium ferroalloys ²			Chromium metal ³	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
2003:							
September	17,200	\$626	378	211	\$479	47	\$1,160
October	1,030	214	393	208	485	72	1,350
November	634	194	462	262	502	152	2,120
December	54,600	4,090	502	285	548	65	958
January-December	103,000	7,410	4,890	2,830	5,240	941	11,900
2004:							
January	223	74	583	344	767	76	1,520
February	2,510	548	685	409	1,040	76	1,660
March	938	290	2,440	1,400	2,940	54	1,710
April	1,340	359	623	348	735	69	2,230
May	3,920	480	370	198	443	177	1,850
June	11,000	1,570	671	362	931	79	1,400
July	8,180	2,130	713	398	1,000	100	1,570
August	10,200	2,680	533	322	685	93	1,510
September	2,750	1,590	706	401	876	53	1,290
January-September	41,000	9,720	7,320	4,190	9,420	776	14,700

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes low-, medium-, and high-carbon ferrochromium and ferrochromium silicon.

³Includes chromium metal waste and scrap and unwrought powders.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND CHROMIUM METAL¹

(Metric tons)

	2003	2004			
	January-December ²	July	August	September	January-September ²
Chromite ore:					
Not more than 40% chromic oxide:					
Gross weight	77	--	--	--	--
Chromic oxide content	24	--	--	--	--
More than 40% but less than 46% chromic oxide:					
Gross weight	7,940	187	192	249	1,540
Chromic oxide content	3,370	85	87	111	694
46% or more chromic oxide:					
Gross weight	165,000	274	20,000	4,350	90,800
Chromic oxide content	77,400	130	9,910	2,240	43,400
Total, all grades:					
Gross weight	173,000	461	20,200	4,600	92,300
Chromic oxide content	80,800	215	10,000	2,350	44,000
Ferrochromium:					
Low-carbon: ³					
Not more than 0.5%:					
Gross weight	19,500	1,120	3,530	1,800	23,200
Chromium content	13,300	772	2,400	1,180	15,600
More than 0.5% but not more than 3%:					
Gross weight	5,340	20	1,090	551	4,980
Chromium content	3,420	15	708	348	3,350
Total, low-carbon:					
Gross weight	24,900	1,140	4,620	2,350	28,100
Chromium content	16,800	787	3,110	1,520	19,000
Medium-carbon: ⁴					
Gross weight	--	--	20	10	30
Chromium content	--	--	10	5	16
High-carbon: ⁵					
Gross weight	366,000	22,100	54,600	13,300	266,000
Chromium content	210,000	11,200	32,800	6,860	149,000
Total, all grades:					
Gross weight	391,000	23,300	59,200	15,600	295,000
Chromium content	227,000	12,000	35,900	8,390	168,000
Chromium metal:					
Unwrought powders	1,810	99	78	166	1,140
Waste and scrap	284	20	--	10	51
Other than waste and scrap and unwrought powders	6,480	804	448	543	6,100
Total, all grades	8,570	923	526	716	7,290

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Ferrochromium containing not more than 3% carbon.

⁴Ferrochromium containing more than 3% carbon but not more than 4% carbon.

⁵Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	September			January-September ²		
	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)
High-carbon ferrochromium: ⁴						
India	--	--	--	12,900	8,110	\$10,400
Kazakhstan	82	56	\$97	56,500	39,100	53,800
Russia	1,470	970	1,180	4,710	3,090	4,060
South Africa	11,700	5,840	7,740	165,000	82,800	95,400
Zimbabwe	--	--	--	26,900	15,900	16,600
Total	13,300	6,860	9,010	266,000	149,000	180,000
Medium-carbon ferrochromium ⁵ , South Africa	10	5	6	30	16	18
Low-carbon ferrochromium: ⁶						
More than 0.5% but not more than 3% carbon						
China	20	9	42	20	9	42
Germany	--	--	--	63	44	72
Kazakhstan	--	--	--	2,020	1,400	3,520
Russia	231	161	266	1,700	1,180	2,300
South Africa	300	178	329	1,180	723	1,420
Total	551	348	637	4,980	3,350	7,360
Not more than 0.5% carbon:						
China	22	14	43	149	96	252
Germany	784	548	1,430	3,400	2,410	5,820
Japan	300	208	719	1,620	1,140	3,730
Kazakhstan	--	--	--	270	189	352
Mexico	4	2	7	4	2	7
Russia	472	335	929	14,600	10,000	20,200
South Africa	220	68	136	3,020	1,660	2,500
Sweden	--	--	--	19	14	63
Turkey	--	--	--	116	81	225
Total	1,800	1,180	3,270	23,200	15,600	33,200
All grades:						
China	42	23	85	169	105	294
Germany	784	548	1,430	3,470	2,460	5,890
India	--	--	--	12,900	8,110	10,400
Japan	300	208	719	1,620	1,140	3,730
Kazakhstan	82	56	97	58,800	40,700	57,700
Mexico	4	2	7	4	2	7
Russia	2,170	1,470	2,370	21,000	14,300	26,600
South Africa	12,300	6,090	8,210	170,000	85,200	99,400
Sweden	--	--	--	19	14	63
Turkey	--	--	--	116	81	225
Zimbabwe	--	--	--	26,900	15,900	16,600
Total	15,600	8,390	12,900	295,000	168,000	221,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Ferrochromium containing more than 4% carbon.

⁵Ferrochromium containing more than 3% carbon but no more than 4% carbon.

⁶Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	September		January-September ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
China	20	\$103	240	\$981
France	--	--	6	31
Germany	4	24	63	346
Japan	24	301	163	1,900
Russia	119	505	527	2,570
Spain	--	--	121	405
Taiwan	--	--	15	21
United Kingdom	--	--	3	358
Total	166	932	1,140	6,620
Waste and scrap:				
Germany	--	--	2	21
Japan	--	--	32	264
Singapore	10	54	11	76
Sweden	--	--	2	6
Taiwan	--	--	4	23
Total	10	54	51	389
Other than waste and scrap and unwrought powders:				
Austria	--	--	(4)	5
China	41	184	1,380	5,570
France	73	593	1,280	9,310
Germany	3	27	20	497
Japan	--	--	2	67
Liechtenstein	--	--	(4)	10
Mexico	--	--	3	9
Netherlands	--	--	7	34
Russia	221	1,100	1,730	7,990
Spain	(4)	16	(4)	20
Switzerland	--	--	(4)	35
Taiwan	--	--	2	15
United Kingdom	203	1,140	1,690	9,270
Total	540	3,060	6,100	32,800
All grades:				
Austria	--	--	(4)	5
China	61	287	1,620	6,550
France	73	593	1,280	9,340
Germany	7	50	86	864
Japan	24	301	197	2,230
Liechtenstein	--	--	(4)	10
Mexico	--	--	3	9
Netherlands	--	--	7	34
Russia	340	1,600	2,260	10,600
Singapore	10	54	11	76
Spain	(4)	16	121	424
Sweden	--	--	2	6
Switzerland	--	--	(4)	35
Taiwan	--	--	21	60
United Kingdom	203	1,140	1,690	9,630
Total	716	4,050	7,290	39,800

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
U.S. TRADE OF STAINLESS STEEL, BY PRODUCT, IN 2004¹

Stainless steel product	September		January-September	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	636	\$3,220	6,280	\$27,400
Flat-rolled (width > 600 mm)	9,560	26,200	114,000	275,000
Flat-rolled (width < 600 mm)	7,020	21,500	71,300	212,000
Bars and rods in irregular coils	517	1,500	2,950	10,100
Other bars and rods	1,800	8,130	17,000	90,100
Wire	724	5,120	6,270	41,900
Tubes, pipes, hollow profiles	2,700	13,100	25,800	121,000
Total	22,900	78,700	244,000	777,000
Stainless steel scrap	34,800	38,200	357,000	403,000
Grand total	57,800	117,000	600,000	1,180,000
Imports:				
Ingot	15,200	35,200	122,000	260,000
Flat-rolled (width > 600 mm)	36,400	86,900	245,000	556,000
Flat-rolled (width < 600 mm)	3,770	12,900	30,100	99,200
Bars and rods in irregular coils	3,480	8,240	30,000	71,400
Other bars and rods	6,420	20,500	49,000	149,000
Wire	3,040	11,400	27,900	103,000
Tubes, pipes, hollow profiles	7,310	33,700	63,600	288,000
Total	75,700	209,000	567,000	1,530,000
Stainless steel scrap	9,300	10,300	109,000	127,000
Grand total	85,000	219,000	676,000	1,650,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Export value is free alongside ship (f.a.s.). Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.